

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Withdrawn) A heating element comprising:
 - a substrate;
 - a conductive layer disposed over the substrate to define a first conductive trace and a second conductive trace with a spacer therebetween; and
 - a resistive layer covering the first conductive trace, the second conductive trace and the spacer, wherein the resistive layer at least partially electrically connects the first and the second conductive traces.
2. (Withdrawn) A heating element according to Claim 1, wherein the resistive layer has a first surface abutting the conductive traces and the spacer, and a second surface opposite the first surface, wherein the second surface is at least substantially planar.
3. (Withdrawn) A heating element according to Claim 2, wherein each of the conductive traces has a sidewall facing the other conductive trace, the sidewall being at least substantially perpendicular to the first surface of the resistive layer.
4. (Withdrawn) A heating element according to Claim 1, wherein the spacer is made of the same material as the resistive layer.

5. (Withdrawn) A heating element according to Claim 1, wherein the spacer comprises an electrically insulating material selected from a group consisting of BPSG, PSG, TEOS, and silicon nitride.
6. (Withdrawn) A heating element according to Claim 1, wherein the spacer and the conductive traces have respective surfaces abutting the resistive layer, the surfaces being at least substantially coplanar with respect to each other.
7. (Withdrawn) A heating element according to Claim 6, wherein the surfaces are chemical mechanically polished.
8. (Withdrawn) A heating element according to Claim 1, wherein the substrate comprises an insulating layer on which the conductive layer is disposed over.
9. (Withdrawn) A heating element according to Claim 8, wherein the spacer is a protruding part of the insulating layer.
10. (Withdrawn) A heating element according to Claim 1, wherein the resistive layer is at least substantially uniformly thick.
11. (Withdrawn) A fluid ejection device comprising:
 - a substrate;
 - a conductive layer disposed over the substrate to define a first conductive trace and a second conductive trace with a spacer therebetween;
 - a resistive layer covering the first conductive trace, the second conductive trace and the spacer, wherein the resistive layer at least

partially electrically connects the first and the second conductive traces;
and

a barrier layer adjacent the resistive layer that defines a fluid chamber in which fluid may be heated and ejected therefrom.

12. (Withdrawn) A printhead comprising:

a substrate;

a conductive layer disposed over the substrate to define a first conductive trace and a second conductive trace with a spacer therebetween;

a resistive layer covering the first conductive trace, the second conductive trace and the spacer, wherein the resistive layer at least partially electrically connects the first and the second conductive traces;
and

a barrier layer adjacent the resistive layer that defines a firing chamber in which fluid may be heated and ejected therefrom.

13. (Withdrawn) A print cartridge comprising:

a fluid reservoir; and

a printhead fluidically coupled with the fluid reservoir, wherein the printhead comprises a substrate; a conductive layer disposed over the substrate to define a first conductive trace and a second conductive trace with a spacer therebetween; a resistive layer covering the first conductive trace, the second conductive trace and the spacer, wherein the resistive layer at least partially electrically connects the first and the second conductive traces; and a barrier layer adjacent the resistive layer that defines a firing chamber in which fluid from the reservoir may be heated and ejected therefrom.

Claim 14. (Cancelled)

Claim 15. (Cancelled)

Claim 16. (Cancelled)

Claim 17. (Cancelled)

18. (Currently amended) A method of manufacturing a heating element for a printhead, said method comprising ~~according to Claim 14, wherein forming a conductive layer comprises:~~

forming an insulating layer on a the substrate;

partially etching through the thickness ~~removing portions~~ of the insulating layer to define a protruding portion having substantially vertical sidewalls and flanked by two shoulder portions;

depositing ~~forming~~ a conductive layer on the insulating layer to cover the protruding portion and the shoulder portions; ~~and~~

planarizing a surface of the conductive layer to expose the protruding portion to thereby form a separate ~~the first conductive trace~~ separate from a the second conductive trace; ~~and~~

forming a resistive layer over the planarized surface of the conductive layer and the exposed protruding portion.

19. (Currently amended) A method according to Claim 18 ~~14~~, wherein the resistive layer is at least substantially uniformly thick.

20. (New) A method for manufacturing a thermal inkjet printhead, said method comprising:

forming an insulating layer on a substrate;

partially etching through the thickness of the insulating layer to define a protruding portion having substantially vertical sidewalls and flanked by two shoulder portions;

depositing a conductive layer on the insulating layer to cover the protruding portion and the shoulder portions;

planarizing a surface of the conductive layer to expose the protruding portion to thereby form a first conductive trace separate from a second conductive trace; and

forming a resistive layer over the planarized surface of the conductive layer and the exposed protruding portion; and

forming an ink chamber above the resistive layer.

21. (New) The method of claim 20 further comprising:

forming a passivation layer between the resistive layer and the ink chamber, said passivation layer being made of an insulating material.

22. (New) The method of claim 21 further comprising:

forming a cavitation barrier layer between the passivation layer and the ink chamber.